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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/607,245 | 06/27/2003 | Edward Milton McWhorter | | 4989 |

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| EXAMINER |
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ECHELMEYER, ALIX ELIZABETH

| ART UNIT | PAPER NUMBER |
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,1745

DATE MAILED: 11/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/607,245

Applicant(s)

MCWHORTER, EDWARD MILTON

Examiner

Alix Elizabeth Echelmeyer

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 September 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-9 is/are pending in the application.
- 4a) Of the above claim(s) 6 and 7 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-5, 8, 9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. This Office Action is in response to the amendments filed September 1, 2006. Claim 1 has been cancelled. Claims 5-9 have been added. Claims 6 and 7 are withdrawn by original presentation (see below). Claims 2-5, 8 and 9 are pending and are rejected finally for the reasons given below.

Election/Restrictions

2. Newly submitted claims 6 and 7 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: Claims 6 and 7 are drawn to a process for preparing a consumable electrode, classified in class 29 subclass 623.3, while the originally claimed invention is a consumable electrode, classified in class 429 subclass 128. Further, the product can be made by a different method such as by coating sodium on a polymer tape.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 6 and 7 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

Art Unit: 1745

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 2-4 are dependent from claim 1. There is insufficient antecedent basis for this limitation in the claim since claim 1 has been cancelled. For the purpose of expediting prosecution, claims 2-4 will be interpreted to be dependent from new claim 5.

Claim Interpretation

5. Claims 5, 8 and 9 of the instant application are drawn to a consumable electrode but contains steps for making said electrode. Since the invention is the final product of the consumable electrode, the method of making the electrode as described in claims 5, 8 and 9 is not given patentable weight. As stated in §2113 of the MPEP, the patentability of a product does not depend on its method of production.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 5 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cheiky (US Patent 4,916,036) in view of Scher et al. (US Pre-Grant Publication 2004/0118448) and Watanabe et al. (US Patent 5,354,628)

Cheiky teaches a consumable electrode comprising a reactive metal from Group I-VII of the Periodic Table on a nonreactive substrate (abstract; Figures 2, 3, and 10; column 4 lines 46-53). As seen in Figure 2, the reactive metal is found in a layer between the nonreactive substrate and another protective layer. Cheiky fails to teach the protective layers as aluminized polymer.

Scher et al., which claims priority to Provisional Application No. 60/452,038 filed March 4, 2003, teach the use of an aluminized polymer film in order to prevent oxygen exposure of the reactant.

Modifying the consumable electrode of Cheiky with the aluminized polymer of Scher et al. would protect the reactant from oxidation before it reached the electrolyte.

Therefore, it would have been obvious to one having ordinary skill in the art the time the invention was made to protect from oxidation the reactant of Cheiky with the aluminized polymer of Scher et al.

Cheiky in view of Scher et al. fail to teach a hermetic seal to contain the alkali metal reactant within the aluminized polymer.

Watanabe et al. teach a hermetic seal to contain a negative sodium electrode to prevent it from coming into contact with substances that might react with it.

Hermetically sealing the aluminized polymer of Cheiky in view of Scher et al. would further protect the sodium electrode from undesired reactants.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to hermetically seal the aluminized polymer of Scher et al. around the electrode of Cheiky et al. in order to prevent unwanted reactions as taught by Watanabe et al.

8. Claims 2 and 9 are rejected over Cheiky, Scher et al., and Watanabe et al. in view of Siskin et al. (US Patent 6,303,019 B1).

The teachings of Cheiky, Scher et al., and Watanabe et al. as discussed above are incorporated herein.

Cheiky, Scher et al., and Watanabe et al. teach the consumable electrode of claim 1. They fail to teach the coating of the sodium foil with a depolarizing agent.

Siskin et al. teach that additives such as depolarizing agents can enhance the performance of electrodes (column 3 lines 52-56).

Using the depolarizing agent of Siskin et al. on the consumable electrode of Cheiky, Scher et al., and Watanabe et al. is desirable because it would enhance the performance of the electrode, which could lead to a more efficient fuel cell that consumed less electrode, produced more power, and/or was less costly.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use a depolarizing agent on the electrode as taught by Siskin et al. in order to enhance the performance of the consumable electrode of Cheiky, Scher et al., and Watanabe et al.

9. Claims 3 and 4 are rejected over Cheiky, Scher et al., and Watanabe et al.

The teachings of Cheiky, Scher et al., and Watanabe et al. as discussed above are incorporated herein.

Regarding claim 3, Cheiky teaches the removal of some of the consumable electrode to improve the performance of the cell by reducing the hydrogen overpotential (column 3 lines 56-59).

Regarding claim 4, Cheiky teaches a connector for the reliable connection of the consumable electrode tape to the spool that drives its path through the electrolyte bath (column 5 lines 38-41). Cheiky gives examples of how this connection can be made, such as hooks, threaded members, and metal Velcro. The bead-chain of the instant application is similar to a hook connection attachment as disclosed in Cheiky.

Response to Arguments

10. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection. However, it is noted that the features upon which applicant relies (i.e., the oil, the class of conductor, and the intended use of the anode material) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alix Elizabeth Echelmeyer whose telephone number is 571-272-1101. The examiner can normally be reached on Mon-Fri 7-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's trainer, Susy N. Tsang-Foster can be reached on 571-272-1293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1745

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Alix Elizabeth Echelmeyer
Examiner
Art Unit 1745

aee

Susy Tsang Foster
SUSYTSANG-FOSTER
PRIMARY EXAMINER